

Constraint-Based Design Recovery for Software Reengineering: Theory and Experiments. By Steven G. Woods, Alexander E. Quilici, and Qiang Yang. Kluwer Academic Publishers, Boston, MA. (1998). 188 pages. \$120.00, NLG 260.00, GBP 79.50.

Contents:

List of figures. Preface. Acknowledgments. 1. Introduction. 2. Plan-based program understanding. 3. Program understanding and constraint satisfaction. 4. Initial experiments with concept recovery. 5. Additional experiments with concept recovery. 6. Program understanding and AI plan recognition. 7. Improving our constraint-based approach. 8. Conclusions. References. Index.

Upgrading Relational Databases with Objects. By Robert Vermeulen. SIGS Publications, Inc., NY. (1996). 212 pages. \$39.95.

Contents:

About the author. Preface. Introduction. 1. The power of relational databases. 2. The expressiveness of objects. 3. Connecting objects to relational databases. 4. Data warehousing and OLAP: Extending the relational model. 5. Object/relational database hybrids. 6. Object-oriented databases. 7. Reusable and distributed objects. 8. Sample applications using objects. 9. Running an object-oriented project. 10. Conclusion. Suggested readings. Index.

Object Modeling and Design Strategies: Tips and Techniques. By Sanjiv Gossain. Cambridge University Press, Cambridge, UK. (1998). 310 pages. \$39.95.

Contents:

About the author. Foreword (Ian Graham). Preface. Acknowledgments. Chapter 1. Objects: Today, tomorrow, and some lessons learned. Chapter 2. The big picture. Chapter 3. Modeling system structure. Chapter 4. Modeling system behavior. Chapter 5. Architecture. Chapter 6. Designing object systems. Chapter 7. Client-server and object distribution. Chapter 8. Putting it all together and making it all work. Appendix A. Notation. Appendix B. Strategies summary. Index.

Geometry, Fields and Cosmology: Techniques and Applications. Edited by B.R. Iyer and C.V. Vishveshwara. Kluwer Academic Publishers, Dordrecht, The Netherlands. (1997). 553 pages. NLG 420.00, \$248.00, GBP 149.00.

Contents:

Preface. 1. Geometrical methods for physics (N. Mukunda). 2. Problems on geometrical methods for physics (Ravi Kulkarni). 3. Tetrads, the Newman-Penrose formalism and spinors (S.V. Dhurandhar). 4. Problems on tetrads, the Newman-Penrose formalism and spinors (Sai Iyer). 5. Aspects of quantum field theory (T. Padmanabhan). 6. Quantum field theory methods, Dirac equation and perturbation theory (Urjit Yajnik). 7. Relativistic cosmology (J.V. Narlikar). 8. The cosmological constant: A tutorial (Patrick Dasgupta). Index.

Handbook of Multivalued Analysis. Volume I: Theory. By Shouchuan Hu and Nikolas S. Papageorgiou. Kluwer Academic Publishers, Dordrecht. (1997). 964 pages. \$395.00, NLG 695.00, GBP 249.00.

Contents:

Preface. 1. Continuity of multifunctions. 2. Measurable multifunctions. 3. Monotone and accretive operators. 4. Degree theory for multifunctions. 5. Fixed points. 6. Concave multifunctions and tangent cones. 7. Convergence of multifunctions. 8. Set-valued random processes and multimeasures. Appendix. References. Symbols. Index.

Applications of Continuous Mathematics to Computer Science. By Hung T. Nguyen and Vladik Kreinovich. Kluwer Academic Publishers, Dordrecht. (1997). 419 pages. \$199.00, NLG 340.00, GBP 122.00.

Contents:

Preface. 1. Algorithm complexity: Two simple examples. 2. Solving general linear functional equations: An application to algorithm complexity. 3. Program testing: A problem. 4. Optimal program testing. 5. Optimal choice of a penalty function: Simplest case of algorithm design. 6. Solving general linear differential equations with constant coefficients: An application to constrained optimization. 7. Simulated annealing: "Smooth" (local) discrete optimization. 8. Genetic algorithms: "Non-smooth" discrete optimization. 9. RISC computer architecture and Internet growth: Two applications of extrapolation. 10. Systems of differential equations and their use in computer-related extrapolation problems. 11. Network congestion: An example of non-linear extrapolation. 12. Neural networks: A general form of non-linear extrapolation. 13. Expert systems and the basics of fuzzy logic. 14. Intelligent and fuzzy control. 15. Randomness, chaos, and fractals. Appendices. A. Simulated annealing revisited. B. Software cost estimation. C. Electronic engineering: How to describe PN-junctions. D. Log-normal distribution justified: An application to computational statistics. E. Optimal robust statistical methods. F. How to avoid paralysis of neural networks. G. Estimating computer prices. H. Allocating bandwidth on computer networks. I. Algorithm complexity revisited. J. How can a robot avoid obstacles: Case study of real-time optimization. K. Discounting in robot control: A case study of dynamic optimization. Index.